REMARKS

Applicants' representative appreciates the courtesies extended during the telephonic interview of November 17, 2008. The amendments and remarks made herein are in accordance with those discussed during the telephonic interview.

The Non-Final Office Action mailed July 28, 2008 considered claims 1-9, 11, 36-38 and 50-60. Claims 1-3, 5, 7-11, and 36-38 were rejected under 35 U.S.C. 103(a) as being unpatentable over Zondervan et al. (US 6,516,327) hereinafter *Zondervan*, in view of Jim Challenger, et al., "A scalable system for Consistently Caching Dynamic Web Data" (hereinafter *Challenger*, and further in view of Craig et al. (US 6,757,708) hereinafter *Craig*. Claims 4, and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Zondervan* in view of *Challenger*, and in view of *Craig*, and further in view of Dettinger et al. (US 2003/0093413) hereinafter *Dettinger*. Claims 50-59 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Zondervan* in view of *Challenger*, and in view of *Craig*, and further in view of Shaul Dar, et al., "Semantic Data Chacing and Replacement" hereinafter *Dar et al.*. Claim 60 was rejected under 35 U.S.C. 103(a) as being unpatentable over *Zondervan* in view of *Challenger*, and further in view of *Craig*, and further in view of Kanaley (US 6,970,981) hereinafter *Kanaley*.[1]

By this amendment claims 1, 36 and 60 are amended, and claims 61-63 are new.[2] Thus claims 1-9, 11, 36-38, and 50-63 are pending, of which claims 1, 36, and 60 are the independent claims at issue.

The present invention is generally directed to registering for and retrieving database table change information that can be used to invalidate cache entries. For example, claim 1 is directed to formulating a Web based response. First, it is determined that a cache entry does not currently exist for the Web based request which will generate the Web based response. As such, a data table is selected to be monitored for content changes. The selected data table is selected from among the one or more data tables of the database. A record for the selected data table is inserted into a separate change notification table. The record includes versioning information identifying and corresponding to the selected data table. The versioning information is

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[1] Although the prior art status of the cited art is not being challenged at this time, Applicant reserves the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.
[2] Support for the amendments to the claims are found throughout the specification, Figures, and previously presented claims, including, paragraphs [0032], [0056], [0059]-[0060] and [0090]-[0099].

retrievable by the Web server to determine when a corresponding cache entry containing cacheable content from the selected data table is invalid.

A trigger is assigned to the selected data table. The trigger is configured to update the versioning information for the selected table in the change notification table when content in the selected data table is altered. Interim results that can be used in the generation of a plurality of different Web responses in are cached in a cache entry in the cache. The interim results are dependent on records from the selected data. The cache entry includes the versioning information identifying and corresponding to the selected data table

A Web based request for a Web based response that is to include the interim results is received subsequent to caching the interim results in the cache entry. The change notification table is queried at specified intervals for versioning information identifying and corresponding to the selected data table. The current versioning information identifying and corresponding to the selected data table is received. The cached versioning information is compared to the current versioning information.

It is determined how to access the interim results for inclusion in a Web based response based on the results of comparing the versioning information and in response to receiving the Web based request for the portion of content. The interim results are accessed in accordance with the determination. Commands are executed to construct a Web based response responsive to the Web based request based on the interim results, and a database cache dependency is assigned to at least a portion of the constructed Web based response based on the commands executed to construct the Web based response. A page file is used to store the dependency information, including information about at least one database, at least one table, and a portion of the Web based response.

Claim 36 is a computer program product corresponding to claim 1.

Claim 60 is directed to invalidating a cache entry. A data table is selected to be monitored for content changes. The selected data table is selected from among the one or more data tables of the database. A record for the selected data table is inserted into a separate change notification table. The record includes versioning information identifying and corresponding to the selected data table. The versioning information is retrievable by the Web server to determine when a corresponding cache entry containing cacheable content from the selected data table is invalid.

A trigger is attached to the selected data table. The trigger is configured to update the versioning information for the selected table in the change notification table when any record in the selected data table is altered regardless of the mechanism used to alter the record. Interim results are contrasted from a collection of records, including a plurality of records in the selected data table and one or more records form one or more other data tables. The interim results are usable in the generation of a plurality of different Web responses. The interim results are cached in a cache entry in the cache. The cache entry including the versioning information identifying and corresponding to the selected data table;

A cache interface module issues a blocking querying to the change notification table for versioning information identifying and corresponding to the selected data table. The blocking query waits until versioning information for the selected table is updated before returning the versioning information for the selected data table. A change to a record in the selected data table is detected subsequent to issuance of the blocking query. The assigned trigger updates the versioning information for the selected table in the change notification table subsequent to issuance of the blocking query.

The cache interface module receives the updated versioning information in response to the blocking query. The cached versioning information is compared to the updated versioning information. The cache entry for the interim results is invalidated based on the results of the comparison.

Applicants respectfully submit that the cited art of record does not anticipate or otherwise render the amended claims unpatentable for at least the reason that the cited art does not disclose, suggest, or enable each and every element of these claims.

Initially, *Zondervan* generally describes a system and method of synchronizing data in multiple databases. The system in *Zondervan* may comprise a source system and a secondary system including source database in a distributed database system which is synchronized to a secondary database (see column 2, lines 37-42). In addition, *Zondervan* may contain a mapping identification table, a delta table, replica databases, and a replica identification table (see column 2, lines 47-62). *Zondervan* includes a method which generally synchronizes data between the source database and the secondary database using these other databases and structures. However, *Zondervan* fails to teach or suggest an act of assigning a database cache dependency to at least a portion of a constructed Web response based on the commands executed during the

construction of the Web response, using a page file to store the dependency information, or an act of caching at least a portion of the constructed Web response in a cache entry in the cache, as recited in claims 1 and 36.

In addition, the other cited art, including *Challenger* and *Craig* also fail to teach or suggest such a limitation. For example, *Challenger* and *Craig* disclose methods for caching web data, but fail to teach that cache dependencies are assigned based on the *commands executed* during the construction of a web response or the use of a page file.

For at least this reason, application submits that clam 1 and claim 36, along with all claims dependent on these claims are allowable over the cited art.

It is also noted that *Kanaley* describes a method for facilitating the updating of caches by initiating a write lock on the caches until all updates are performed (see column 5, lines 52-67, for example). Specifically, a notification thread *locks* the caches (see column 4, lines 58-59). Applicant submits that this is quite different from the method recited in claim 60, wherein a cache interface module initiates a blocking query to the change notification table. Here, the blocking query *waits* until versioning information for the selected table is updated before returning versioning information for a selected data table. These are two very different functions: in *Kanaley* the thread actually performs an operation on the cache which affects its write-ability. Here, however, the claimed method executes a *query* (not an update or change) on the change notification table, and then the *query itself* (not the table) is blocked. The *blocked query* then returns data only after the table has been updated.

For at least this reason, Applicant submits that claim 60 is allowable over the cited art.

In view of the foregoing, Applicant respectfully submits that the other rejections to the claims are now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that this should not be construed as Applicant acquiescing to any of the purported teachings or assertions made in the last action regarding the cited art or the pending application, including any official notice. Instead, Applicant reserves the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any Official Notice, explicitly or implicitly, Applicant specifically requests that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at 801-533-9800.

Dated this 21st day of November, 2008.

Respectfully submitted,
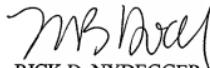
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